

AMENDMENTS TO THE CLAIMS

Please add claims 90-92. Please amend claims 32, 46, 73, 84 and 87 as follows:

1-31. Cancelled.

32. (Currently Amended) A method of processing a packet comprising:
matching one or more characteristics of said packet with one or more access
control specifiers in at least one access control element; ~~and~~
selecting a highest priority match based on a type of an access control specifier of
the highest priority match, wherein the type of the access control specifier
of the highest priority match is related to an element of a packet header to
which the access control specifier of the highest priority match is
responsive; and
processing said packet based on said ~~matchings~~selecting.

33. (Previously Presented) The method of claim 32, wherein said access
control element is a content addressable memory.

34. (Previously Presented) The method of claim 32, wherein said matching
and said processing is done in parallel.

35. (Previously Presented) The method of claim 32, wherein said
characteristics of said packet comprises one or more of a source address, a destination
address, a source port, a destination port, a protocol type, an input interface and an output
interface.

36. (Previously Presented) The method of claim 32, wherein said
characteristics of said packet comprises data carried by said packet in a packet header.

37. (Previously Presented) The method of claim 32, further comprising:
receiving said packet.

38. (Previously Presented) The method of claim 32, further comprising:
identifying one or more of said access control specifiers based on said matching.
39. (Previously Presented) The method of claim 37, further comprising:
prioritizing said one or more of said access control specifiers identified based on
said matching to generate a set of prioritized access control specifiers.
40. (Previously Presented) The method of claim 39, wherein said prioritizing
is done in parallel by a priority encoder.
41. (Previously Presented) The method of claim 39, wherein said prioritizing
is done based on an address of said access control specifiers in said access control
element.
42. (Previously Presented) The method of claim 39, wherein said processing
is done based on said set of prioritized access control specifiers.
43. (Previously Presented) The method of claim 32, wherein said processing
further comprising:
if said packet requires processing by a higher-level processor,
forwarding said packet to said higher-level processor.
44. (Previously Presented) The method of claim 32, further comprising:
if said packet requires dropping,
dropping said packet.
45. (Previously Presented) The method of claim 32, further comprising:
if said packet requires forwarding,
forwarding said packet.

46. (Currently Amended) A system for processing a packet comprising:
one or more access control specifiers, wherein said one or more access control specifiers are of one or more types of access control specifiers, said one or more types of access control specifiers being related to one or more elements of a packet header to which said one or more access control specifiers is responsive;
an access control element, wherein said access control element is configured to store said one or more access control specifiers; and
a priority encoder coupled to said access control element, wherein said priority encoder is configured to prioritize in parallel said one or more access control specifiers matched with one or more characteristics of said packet and to select a highest priority match based on said one or more types of access control specifiers.
47. (Previously Presented) The system of claim 46, wherein said priority encoder is further configured to
prioritize said one or more access control specifiers matched with said one or more characteristics of said packet according to an address of said one or more access control specifiers in said access control element.
48. (Previously Presented) The system of claim 46, further comprising:
a compare unit coupled to said access control unit, wherein said compare unit is configured to compare said one or more characteristics of said packet with one or more values.
49. (Previously Presented) The system of claim 48, wherein said one or more values are predetermined.
50. (Previously Presented) The system of claim 48, wherein said one or more values are dynamically determined.

51. (Previously Presented) The system of claim 48, wherein said compare unit is further configured to
perform arithmetic operation on data carried by said packet in a packet header.

52. (Previously Presented) The system of claim 48, wherein said compare unit is further configured to
perform logical operation on said data carried by said packet in said packet header.

53. (Previously Presented) The system of claim 46, wherein said access control element further comprising:
an access control memory.

54. (Previously Presented) The system of claim 53, wherein said access control memory is a content-addressable memory.

55. (Previously Presented) The method of claim 53, wherein said access control memory stores at least one of said access control specifier.

56. (Previously Presented) The system of claim 53, wherein said access control specifier further comprising:
a label match mask configured to determine whether a first corresponding bit of said one or more characteristics of said packet is tested; and
a label match pattern, wherein said label match pattern is compared with a second corresponding bit of said one or more characteristics of said packet.

57. (Previously Presented) The system of claim 46, further comprising:
a processor, coupled to said access control element, said processor is configured to process said packet when said packet is not processed by said access control element.

58. (Previously Presented) The system of claim 46, further comprising:
at least one input port coupled to said access control element, wherein said input port is configured to receive said packet; and
at least one output port coupled to said access control element, wherein said packet is forwarded via said out put port.

59. (Previously Presented) A system for processing a packet comprising:
means for matching one or more characteristics of said packet with one or more access control specifiers in at least one access control element; and
means for processing said packet based on said matching.

60. (Previously Presented) The system of claim 59, wherein said access control element is a content addressable memory.

61. (Previously Presented) The system of claim 59, wherein said matching and said processing is done in parallel.

62. (Previously Presented) The system of claim 59, wherein said characteristics of said packet comprises one or more of a source address, a destination address, a source port, a destination port, a protocol type, an input interface and an output interface.

63. (Previously Presented) The system of claim 59, wherein said characteristics of said packet comprises data carried by said packet in a packet header.

64. (Previously Presented) The system of claim 59, further comprising:
means for receiving said packet.

65. (Previously Presented) The system of claim 59, further comprising:
means for identifying one or more of said access control specifiers based on said
matching.

66. (Previously Presented) The system of claim 64, further comprising:
means for prioritizing said one or more of said access control specifiers identified
based on said matching to generate a set of prioritized access control
specifiers.

67. (Previously Presented) The system of claim 66, wherein said prioritizing
is done in parallel by a priority encoder.

68. (Previously Presented) The system of claim 66, wherein said prioritizing
is done based on an address of said access control specifiers in said access control
element.

69. (Previously Presented) The system of claim 66, wherein said processing is
done based on said set of prioritized access control specifiers.

70. (Previously Presented) The system of claim 59, wherein said processing
further comprising:
means for forwarding said packet to said higher-level processor if said packet
requires processing by a higher-level processor.

71. (Previously Presented) The system of claim 59, further comprising:
means for dropping said packet if said packet requires dropping.

72. (Previously Presented) The system of claim 59, further comprising:
means for forwarding said packet if said packet requires forwarding.

73. (Currently Amended) A system comprising:
means for maintaining a set of access control ~~patterns~~patterns in at least one
associative memory;
means for receiving a packet label responsible to a packet, said packet label being
sufficient to perform access control processing for said packet;
means for matching matchable information, said matchable information being
~~responsible~~responsive to said packet label, with said set of access control
patterns in parallel;
means for generating a set of matches in response thereto, each said match having
priority information associated therewith;
means for selecting at least one of said matches in response to said priority
information, and generating an access result in response to said at least
one selected match; and
means for making a routing decision in response to said access result.

74. (Previously Presented) The system of claim 73 further comprising:
means for choosing a first one of said matches.

75. (Previously Presented) The system of claim 73, further comprising:
means for determining an output interface for said packet.

76. (Previously Presented) The system of claim 73, further comprising:
means for implementing a quality of service policy.

77. (Previously Presented) The system of claim 73, further comprising:
means for permitting or denying access for said packet.

78. (Previously Presented) The system of claim 73, further comprising:
means for making a preliminary routing decision for said packet.

79. (Previously Presented) The method of claim 73, further comprising:
means for determining at least one output interface for said packet.

80. (Previously Presented) The system of claim 73, further comprising:
means for preprocessing said packet label; and
means for generating said matchable information.
81. (Previously Presented) The system of claim 79, further comprising:
means for performing one or more of an arithmetic, logical, and comparison
operation on said packet label; and
means for generating a bit string for said matchable information in response to
said arithmetic, logical, and comparison operation.
82. (Previously Presented) The system of claim 73, further comprising:
means for comparing a field of said packet label with an arithmetic range or mask
value.
83. (Previously Presented) The system of claim 73, further comprising:
means for comparing a source IP port value or a destination IP port value with a
selected port value.
84. (Currently Amended) The system of claim ~~[[32]]~~73, further comprising:
means for postprocessing said selected match to generate said access result.
85. (Previously Presented) The system of claim 73, further comprising:
means for accessing a memory in response to a bitstring included in said selected
match.
86. (Previously Presented) The system of claim 73, further comprising:
means for declaring whether to permit or deny access of a set of packets.

87. (Currently Amended) The system of claim 73, further comprising:
means for receiving ~~[[said]]~~a sequence of access control specifiers;
means for translating said sequence of access control specifiers into ~~[[said]]~~a
sequence of access control patterns; and
means for storing said sequence of access control patterns in said associative
memory.
88. (Previously Presented) The system of claim 73, further comprising:
means for generating a single one of said access control patterns in response to a
plurality of said access control specifiers.
89. (Previously Presented) The system of claim 73, further comprising:
means for generating a single one of said access control patterns in response to a
plurality of said access control specifiers.
90. (New) A method of processing a packet comprising:
determining a selected output interface for the packet;
matching one or more characteristics of said packet with one or more access
control specifiers in at least one access control element, wherein said
matching step is performed in parallel with said determining step; and
processing said packet based on said matching.
91. (New) The method of claim 32, wherein said one or more access control
specifiers include a label match mask and a label match pattern.
92. (New) The system of claim 46, wherein said one or more access control
specifiers include a label match mask and a label match pattern.